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The Institute Spokesman

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NATIONAL LUBRICATING GREASE INSTITUTE

VOLUME II • NUMBER 2 MAY, 1938

More Power to Us

CONDENSED FROM COLLIERS

Rudolf Diesel, German engineer, born in Paris, did not live to see the wide acceptance of the great invention that perpetuates his name. He fell overboard the Antwerp-Harwich mail steamer at night on September 30, 1913, less than a year before the outbreak of the World War. Nobody thought Rudolf Diesel important in 1892 when his invention was announced. Old Prince Bismarck was important, yes, and the swaggering young Kaiser Wilhelm was a bright figure upon the stage of world affairs, but Diesel was just another inventor, a wholly uncertain quantity.

What Rudolf Diesel had learned was fundamental, as were the discoveries of Pierre and Marie Curie, the pioneers of radium. Other men explored the trails he had blazed. New inventions were piled upon his original work. The improved engine became practicable and soon in amazing ways our lives began to be influenced by the work of this German inventor. If you try to follow the consequences of Dr. Diesel's work the astounding complexity of our present-day relationships is quickly apparent.

The competition of the private motorcar and the development of air transportation hit the railroads heavy blows. Motorcars and airplanes set new standards of speed and comfort. The railroads plainly had to make important improvements in order to meet successfully the demands of travelers educated by the automobile and the airplane.

So these new swift streamlined trains propelled at speeds incredible a few years ago were called into existence. The Diesel engine made them practicable. The basic invention of a comparatively obscure German engineer shortened the travel time between the Atlantic and the Pacific by two days.

That is a very spectacular accomplishment. If you drive across the continent you witness a significant procession. Overhead the transcontinental planes drone along at speeds almost incomprehensible. Your own car, if you are an average driver, will be moving generally at about the rate of the familiar passenger trains and much faster than the long freights. Swishing and roaring past you and past all other railroad traffic will be the streamliners. Only aircraft can move faster.

We don't know yet just what effects this shortening of travel time will have upon us. All we can be sure of is that the effects will be far-reaching and surprising.

Take another look at these Diesel engines. In many countries numerous manufacturers are at work exploring new uses for Diesels. One of the many applications of the engine is in supplying the primary power to be converted into electricity.

Now see how this impinges upon even our Congress. One of the acute controversies of recent sessions of Congress has centered around the relationship of the government to public utilities.

The shadow of Dr. Diesel, dead almost twenty-five years, falls across this public utility controversy. American engineers, as well as English, Scotch, French and German engineers, among others, have made vast improvements in the Diesel. It is now the most efficient agency for transforming heat into energy.

So numerous cities and towns have bought their own Diesel engines to produce electricity for local consumption. This gives a new twist to the political fights over the public utilities.

If a city can, by the use of a Diesel engine, produce electricity more cheaply than it can be bought even from a government-owned hydroelectric plant, then the temptation of the city to buy government electricity will be slight.

It is unsafe to say that Diesel engines will be the cheapest power producers. The National Resources Committee, which reported less than a year ago to Congress and to the President, said that for large-scale production the steam power plant is still ahead. It also said that steam- or Diesel-produced electricity is cheaper than hydroelectric power of equal service.

In the long run, unless we are restrained, we tend to do our work as economically as possible. Consequently, the controversy between those on opposing sides of the power question will be decided on the facts. In that decision the ghost of Rudolf Diesel will play a part.

One thing that distinguishes the United States from all other lands is the vast amount of mechanical power available to us. The National Resources Board estimated that we had about a billion and a quarter horsepower ready to do our work in 1935. This was, roughly, the energy of ten mechanical horses for every man, woman and child in the United States.

Recent developments in numerous laboratories of the manufacturers who make Diesel engines have made it easier by distributing small power plants to scatter energy through the villages and rural areas. Nobody knows just what effect this is going to have upon us but it may be very important. If it is, we can thank or blame Rudolf Diesel. In the long run, the inventors,

(Continued on Page 2)

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(Continued from Page 1)

however remote, count for more than the politicians. We forget the men, but we use their works.

The latest development in small Diesel power is the General Motors Line consisting of three cylinder sizes: the small engine with 25 H. P. per cylinder fitting in with truck, bus, and small industrial field requirements; the medium size with 50 H. P. per cylinder giving a 200 to 400 H. P. range for marine engines, generator sets, rail car conversions, shovels, and small locomotives, and the large size of 82 H. P. per cylinder providing a range from 600 to 1200 H. P. for the marine, industrial, and locomotive fields.

The small engines are 4¼ x 5, built as one, three, four, and six-cylinder "in-line" engines with top ratings from 22 BHP to 160 BHP at 1800 R. P. M., with piston speeds of 1500 feet per minute. The BMEP at this rating is 83, and the weight of the basic engine is ten pounds per horsepower in the six-cylinder engine. In the medium size the cylinder is 6⅜ x 7, built in four, six, and eight-cylinder "in-line" engines with from 200 to 400 BHP at 1200 R. P. M., giving a piston speed of 1400 feet per minute. The BMEP at this rating is 74 pounds per square inch.

In the large engine the cylinder size is 8 x 10, built in eight, twelve, and sixteen cylinders, with horsepower ratings from 600 to 1200. With a speed of 750 R. P. M. the piston speed is 1250 feet per minute. The eight is an "in-line" engine and the twelve and sixteen-cylinder are Vee engines.

Technical Data

PROPOSED METHOD OF TEST FOR DROPPING POINT OF LUBRICATING GREASES

The melting or dropping point of lubricating greases is of value to the manufacturer and user of greases. To the manufacturer it is a measurement of uniformity and to the user, in addition to uniformity, it is a measurement that aids in the selection of the proper type lubricant for a particular operating temperature.

To date there has been no standard method used to determine the dropping point of lubricating greases. There are a large variety of methods in use by the laboratories of both the grease industry and those of large users of greases with the result that a reported dropping point has very little meaning unless the method used accompanies the results.

A few of the more popular methods in general use are the Gillette which makes use of an open capillary tube, the Penola method using a wire spiral on the bulb of the thermometer, another by coating the plain thermometer bulb with the lubricant to be tested, the Ubbelohde method with which you are all familiar and several others.

The D-2 Committee of the A. S. T. M., after considerable research and checking, has proposed a modification of the Ubbelohde method which if adopted will standardize this test so that results will be uniform throughout the industry.

In order to familiarize the industry and users of lubricating greases with this method the enclosed sheet fully illustrates and describes the procedure in detail. Some revisions are contemplated to improve accuracy and ease of operation. These will be reported on later. It also carries a list of necessary equipment. It is to be thoroughly understood that the "Spokesman" in no way recommends these particular products. The necessary equipment and accessories can be purchased from your

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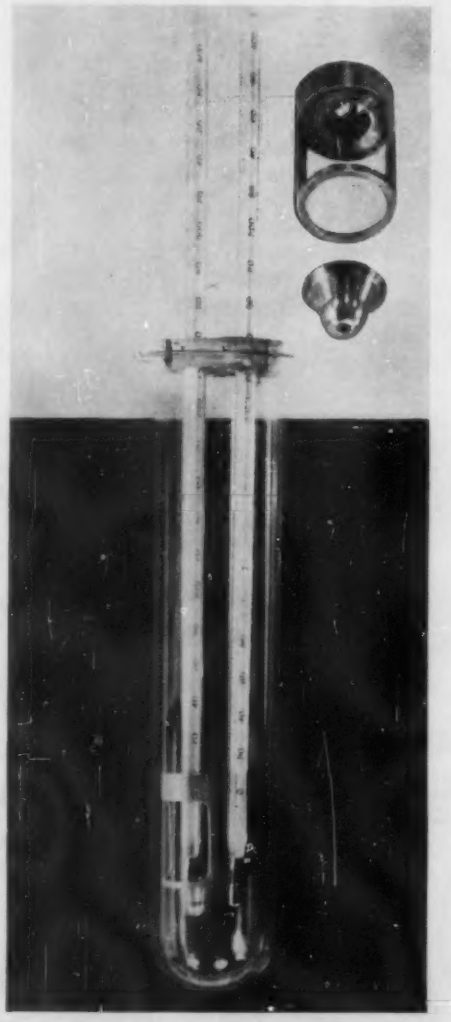

Safety

Mark Load Limit on Floors and Beams

S. H. Coleman, *Roanoke, Va.*

Danger of exceeding load limits of floors and beams can hardly be over-emphasized. Many a good floor has been cracked, or completely caved in, by subjecting it to loads 'way beyond its capacity. In the case of beams, too, someone is likely to clamp on a hoist and lift some object so heavy that the metal is distorted and the whole structural framework is pulled out of line.

This kind of thing is particularly likely to happen to roof trusses which are usually designed to support only the roof and a uniformly distributed load of snow or water, but are not intended to take a heavy stress at any one point.

Realization of these hazards both to structures and to personnel has led one company to adopt the policy of stenciling the permissible load limit on the walls in each area. A white square is first painted on, and the load limit marked with black figures, so that they stand out prominently.

All beams supporting permanently mounted hoists, and those to which hoists can be attached, are stenciled "Not Over —— Lb." with black paint when the metal is protected with aluminum paint, or with yellow paint when the background is green. Walls near the points where loads are attached to the beams carry a similar sign. Beams that are stenciled in this way must not be used to support hoists.

As a further precaution against overloading it is required that before a beam may be drilled for any purpose, as when installing a pipe line or electrical conduit, permission of the structural engineering department must be obtained. The same rule must be observed when a temporary excess load is to be placed on any floors, so that they can be given additional support if necessary.

Personal

New Member: The Hodson Corporation, Chicago, Ill.

We are glad to report that Wm. H. Saunders, International Lubricant Corp., and J. R. Battenfeld, Battenfeld Grease and Oil Corporation, are well on the road to recovery after recent illness.

Automotive Lubrication Guide — The fifth edition of the Service Man's Guide To Automotive Lubrication, completely revised to include new automotive constructions, has just been released by the Chek-Chart Corp., 624 S. Michigan Ave., Chicago. Single copies are available from Chek-Chart for $2 each.

APPENDIX I

PROPOSED METHOD OF TEST
FOR
DROPPING POINT OF LUBRICATING GREASES[1]

This is a proposed method and is published as information only. Comments are solicited and should be addressed to the Headquarters of the Society, 260 S. Broad St., Philadelphia, Pa.

1. *Scope.*—This method is intended for use in determining the dropping point of lubricating greases.

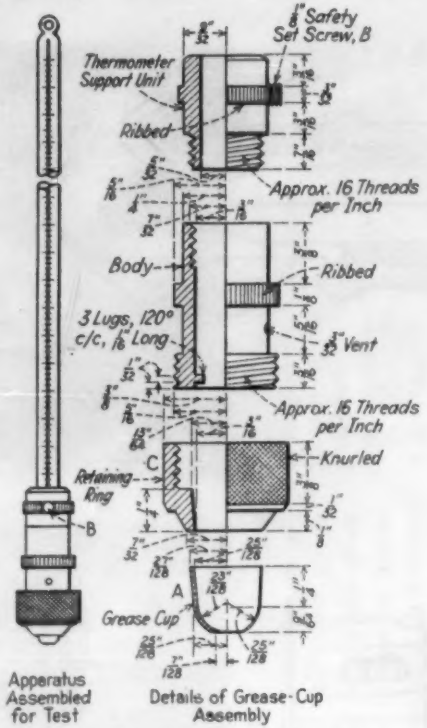

FIG. 1.—Apparatus for Testing Dropping Point of Greases.
When assembled for test, the lower end of the bulb shall be placed exactly ½ in. above the bottom of the grease cup.

NOTE.—The dropping point as determined by this method gives information as to when softening begins under the conditions of the test, but should not be considered as having any bearing upon performance in service.

[1] Under the standardization procedure of the Society, this proposed method is under the jurisdiction of the A.S.T.M. Committee D-2 on Petroleum Products and Lubricants.

PROPOSED TEST FOR DROPPING POINT OF GREASES

2. *Apparatus.*—(*a*) *Thermometer.*—The thermometer shall be graduated in Fahrenheit degrees, the range being 20 to 580 F., and shall conform to the Standard Specifications for A.S.T.M. Partial-Immersion Thermometer for General Use (A.S.T.M. Designation: D 183) of the American Society for Testing Materials.[1]

(*b*) *Grease-Cup Assembly.*—The grease-cup assembly shall conform to the requirements shown in Fig. 1.

(*c*) *Accessories.*—Accessories required consist of a test tube approximately 4 cm. in diameter by 18 cm. in height, a 600-ml. beaker, ring stand, clamp for test tube, support for beaker, gas burner, suitable oil[2] for oil bath, etc.

3. *Procedure.*—(*a*) The grease-cup assembly shall be placed in position on the thermometer at a height so that the tip of the thermometer bulb will be ½ in. above the bottom of the grease cup, *A*. The set screw, *B*, shall then be tightened to hold the assembly in position on the thermometer.

(*b*) The grease cup shall then be removed and filled with grease by pressing the larger end into the grease to be tested until the cup is filled, taking care to avoid inclusion of air. Working the grease shall be avoided as far as possible. Excess grease shall be removed with a spatula or knife.

(*c*) The full grease cup shall then be placed on the retaining ring, *C*, and the ring screwed in position to bring the thermometer bulb to the original position with respect to the cup outlet. Grease forced out in this operation shall be carefully removed.

(*d*) The thermometer and assembly shall then be placed in the test tube with the bottom of the cup 1 in. from the bottom of the test tube and the test tube suspended in the oil bath submerged to one-half its height.

(*e*) The oil bath shall be heated so as to cause the temperature indicated by the thermometer to rise at a rate of 8 to 10 F. per min. until a temperature approximately 30 F. below the expected dropping point of the grease is reached. At this point, the rate of heating shall be changed to 2 to 3 F. per min. As the temperature increases, grease will gradually protrude through the orifice of the grease cup. When a drop of grease falls the temperature shall be noted and recorded as the dropping point.

[1] 1936 Book of A.S.T.M. Standards, Part II, p. 1405.
[2] A suitable oil is one that does not vaporize appreciably at the temperature of the test and does not darken rapidly with repeated heating. Castor oil is satisfactory.

APPARATUS FOR DROPPING POINT OF LUBRICATING GREASES

(Proposed Method-See A.S.T.M. 1937 Report Committee D-2)

This method is a modification of the well known and widely used Ubbelohde dropping point method.

No.55800 (Fig.1) Dropping Point Apparatus complete with all accessories including: thermometer #51140, +20 to 580°F.; 600 ml. beaker in which test tube is immersed; test tube 4 c.m. by 18 c.m. for including sample; rod and base support; ring stand and clamp for test tube; support for the beaker; gas burner ....$15.00 Each Net

No.55802 (Fig.3 without thermometer) Dropping Point Apparatus without accessories mentioned above ..... $5.00 Each Net

*No.51140 Thermometer, range +20 to 580°F., length 15 inches, immersion 3 inches ..... $3.56 Each Net

*No.51146 Thermometer, range -5 to 300°C., length 15 inches, immersion 3 inches ..... $3.56 Each Net

* Quantity Discounts

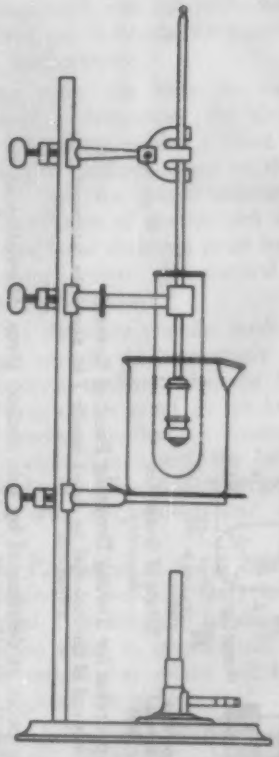

FIG.1

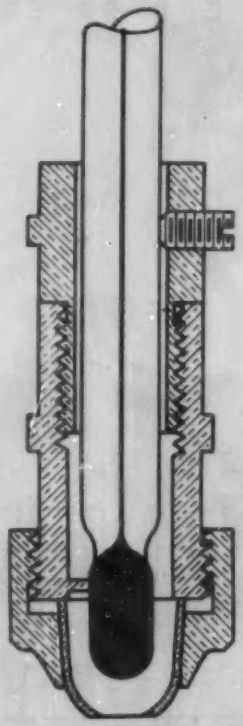

FIG. 2

FIG. 3

C. J. TAGLIABUE MFG. CO.

Park & Nostrand Ave's., Brooklyn, N. Y.

TAGLIABUE BROOKLYN N.Y. U.S.A.

Printed in U. S. A. Bulletin No. 1174 M-APOC—4-38

The INSTITUTE SPOKESMAN

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GEORGE W. MILLER . . . *Editor*
498 Winspear Avenue, Buffalo, N. Y.

The INSTITUTE SPOKESMAN is a vital part of the function of the National Lubricating Grease Institute. In order to make this paper both interesting and worthwhile we are looking to the membership as a whole to co-operate in its publication.

Jot down your ideas — pass them on to the next fellow. In turn his idea may help you. In addition we will appreciate your suggestions.

(*Continued from Page 2*)

regular chemical supply house or manufacturer of laboratory equipment.

It is interesting to note the work done by the laboratories of the Chrysler Corporation of Detroit. They have developed an instrument very similar to the modified Ubbelohde instrument as illustrated in Fig. 1, showing both tip and set up. The tip is identical in size and shape as the Ubbelohde but the holder differs. Various claims made are ease of assembly and cleaning, visibility of sample throughout test and the spring clip arrangement for holding the thermometer, which they claim prevents breakage due to adjusting set screw used in the Ubbelohde instrument. Procedure is the same with the exception of the use of two thermometers, reporting the average temperature reading. This method is reported as a matter of information and not to be confused with the proposed method. Further developments will be published in a future issue.

Latest Car Manufacturers Recommendations

NEW PLYMOUTH MODEL—Plymouth has brought out a new model known as the "High Wheeler". There is no difference between the lubrication details of this new job and the standard 1938 jobs, except in the shock absorbers. These units are somewhat longer and the fluid capacity is different.

WILLYS BRAKE CABLE LUBRICATION — Due to the difference in method of lubricating the front and rear brake cables on 1937-38 Willys models, special attention should be given these points:

The front brake cables on these models are equipped with plugs. To service these units, remove plug, substitute fitting to lubricate, reinstall plug. Release pressure when grease appears at rear end of cable. The rear brake cables require partial disassembly to lubricate. Graphite Grease is recommended for use on both front and rear brake cables. See illustration.

HUPMOBILE 6 (ES-822) — 1938 — Hupmobile has brought out a model known as the ES-822. This ES model is identical with the E-822 model in all lubrication details.

PACKARD 6 & 8 — 1938 — Rear Springs —On part of production are uncovered, while metal covers are provided on some cars for protection only. Please bear in mind that rear springs on these models MUST NOT be lubricated, as there are special composition inserts between the spring leaves, and the application of any kind of lubricant would be harmful.

WILLYS 37—1937; 38—1938 — A recent change has been made by the Willys-Overland Engineering Department in the amount of lubricant to be used in the transmission on these models. The new recommended amount is 1 pt. or lb. instead of 1¼ pt. or lb.

Differential—Willys has eliminated the recommendation of SAE 160 for Summer use and now recommends SAE 90 all seasons.

FORD SPRING COVERS—Since about May, 1936, springs on Ford cars have been equipped with a lubrication fitting on the end of the center spring tie bolt, through which a special Ford Spring Lubricant is applied to lubricate the spring leaves.

Spring covers, as an accessory, are now available for Ford springs that are equipped with means for lubrication as outlined above. The installation of these covers in

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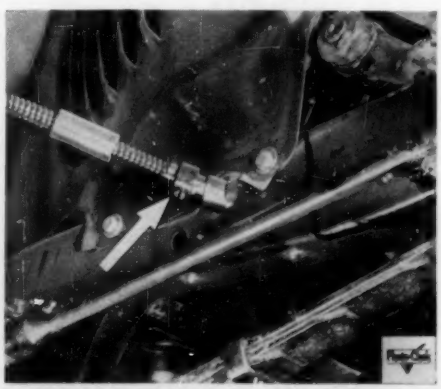
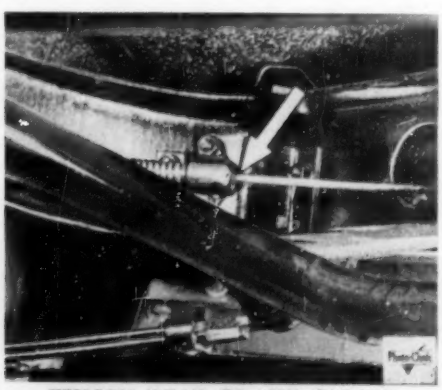


WILLYS FRONT BRAKE CABLES



WILLYS REAR BRAKE CABLES

Transportation

Rule 40 of the Consolidated Freight Classification No. 12 (Section 5 (c) thereof) provided that when the capacity of the steel barrel or drum was over 10 gallons, to and including 20 gallons, that the minimum thickness of steel to be observed in the construction thereof was as follows:

For Dry or Solid Articles Other than Single Trip	*For other than Dry or Solid Articles*
24 U. S. Gauge	20 U. S. Gauge

and, further, that Note 1 of the same rule provided:

"The term 'Dry or Solid' is defined as referring only to articles which are dry or solid at a temperature of 100 degrees Fahrenheit."

Now, effective July 1, 1938, in Supplement 2 to the Consolidated Freight Classification No. 12, the carriers have eased up their regulations a trifle by providing in connection with the 20 gauge drum, as indicated above, a new Note No. 3 reading:

"Steel barrels or drums, other than full open head type, of capacities over 10 gallons to and including 20 gallons, may be used as single trip containers *for other than dry or solid articles*, see Note 1, page 19 of Classification, when made of steel of following minimum thicknesses:

"Minimum Thickness of Steel:

Sides	*Ends*
22 Gauge	20 Gauge"

In other words, instead of a 20 gauge steel drum as heretofore required, the shipper may, as to "single trip containers," use drums, the sides of which are made of 22 gauge steel and the ends of which are made of 20 gauge steel. The containers must further bear the initials "S. T. C." to signify that they are single trip containers, etc.

Sales and Merchandisiug

A BILLION DOLLAR OPPORTUNITY !

Right now the thing which should be uppermost in the minds of all retailers is the Spring market for lubrication.

Everyone wants a share of this huge market, but the retail outlet which will get the lion's share is the one that is prepared to go after it.

We suggest that the retailer first look at this big Spring market just the same as the lady of the house does when she is expecting company. "Company is coming" to the service station this Spring, so it behooves every retailer to prepare for visitors and that means, first, that the house should be put in apple-pie order. May we suggest, therefore, that these things have your consideration:

1. *Station Appearance* — Cleanliness of stations — driveways — salesroom—toilets—wash rack—lubrication department—pump islands—displays—windows, etc., etc. "A place for everything and everything in its place" is an elementary necessity of good housekeeping as well as good marketing. Station appearance will either invite the car owner in or influence him to stay out. Do your Spring cleaning early—and do a good thorough job of it.

2. *Sign Display*—Take a good look at your signs—other people do. A little Bon Ami or paint where needed will give your signs a well groomed appearance, which is always an invitation to buy.

3. *Personal Appearance of Station Men* —A stubble of beard and a greasy jumper or dirty old sweater may hide a heart of gold —but a clean, snappy-looking station man, wearing a big smooth-shaven smile makes a hit with Mr. Car Owner. What impression is created by those who greet him on your driveways?

4. *Equipment* — Spring is the logical time to make a check-up on your equipment —how does yours look? Does it work properly? Are you ready with the proper equipment to do the complete job right?

5. *Stock of Merchandise*—Car manufacturers agree that Spring car conditioning means a change-over from winter to summer grades of oils and lubricants—make sure your stock of summer grades is complete and adequate. A good display of summer lubricants with a suitable sign calling your customers' attention to them is a fine way to capture their interest.

6. *Selling Spring Change-Over Service*— Too many outlets wait for the customers to ask for spring change-over service. Don't wait—tell them now how important it is to smooth economical car operation that they let you put their cars in shape for satisfactory operation.

Today we hear of thousands of opportunities to make "easy money". Sweepstakes tickets, bank nights and radio prizes are all around us. But right under our noses is a golden opportunity to serve car owners and profit handsomely by doing so. There are no chances to take, no tickets to buy—but day after day the opportunity is there. It's simply a matter of "asking 'em".

Thin winter lubricants can't be expected to stand the gaff of summer driving. This point is particularly true in the case of more recent car models, where smaller transmissions and differentials have to carry heavier loads. Here are the sales "gold mines"—make them pay!

Engine: Drain, flush and refill with new, fresh oil of the proper grade for the coming season. Flushing rinses out loose dirt and grit and cleans out the crankcase, ready for the new, clean oil. Flushing brings the sale of flushing oil, and refilling sells an average of 6 qt. of Engine Oil.

Transmission: Drain, flush and refill with proper grade of new, fresh gear lubricant for the coming season. Automatic or self-shifting transmissions and some transmissions with overdrive require Engine Oil.

Differential: Drain, flush and refill with new, fresh gear lubricant of the proper type for that car model and of the proper grade for the coming season.

Chassis Lubrication: Regulation lubrication job, covering all fittings on all points on the chassis and including wheel bearings, universal joints, etc.

Oil Filter: Check mileage; recommend new unit or cartridge if used over 10,000 miles. If not so equipped, installation may be suggested.

Air Cleaner: Check condition; if dirty, recommend cleaning and re-oiling.

Battery: Check hydrometer reading and suggest new cables, recharging or new battery, as needed.

Tires: Check air and inflate according to manufacturers' recommended pressures. Examine for wear and suggest new tires or tubes when needed—also new valve caps and cores.

Cooling System: Drain and flush to remove all anti-freeze, rust and sediment. Recommend new hoses, radiator rust inhibitor, etc., as needed. Check fan belt for correct tension and condition and recommend new belt if needed. Remove radiator covers, if any. Suggest bug screens. Turn off car heater.

Other Merchandise and Services:

Fuses	Car washing
Lamp bulbs	Top dressing
Spark plugs	Body polishing
Ignition cables	Upholstery cleaning
Windshield wiper blades and arms	Your other services

Summer is coming — Business is here — Get your share!

(*Continued from Page 3*)

no way alters the spring lubrication recommendation. Their use is to prevent water, mud and grit from accumulating on and working between the spring leaves.

HUDSON ADDS THERMOSTAT—The first part of 1938 production on the Hudson Standard Terraplane was not equipped with a thermostat, but starting December 14th a thermostat was installed in the cooling system and will be continued through the balance of 1938 production.

DELCO DIRECT ACTING DOUBLE ACTION SHOCK ABSORBERS — An illustrated story covering the complete servicing of these new units is published in the March, 1938, issue of MOTOR AGE. The story is entitled "Merrily We Roll Along" and starts on page 12. If you are interested, write to Bill Toboldt, Editor, 56th and Chestnut Streets, Philadelphia.

CHRYSLER CORPORATION announce the following changes applying to their entire 1938 passenger car line including all Plymouth, Dodge, DeSoto and Chrysler models.

The operation on the distributor covered in all passenger car Instruction Books by the clause, "add 2 or 3 drops of light engine oil to breaker arm pivot", should be discontinued. Other lubrication operations on the distributor should be continued as stated in the Instruction Books.

Generator lubrication has been listed as a 2000 mile frequency operation. Kindly change this to a 6000 mile operation.

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